Amendments to the Claims:

This listing of claims will replace all prior listings thereof.

1. – 16. (Canceled)

17. (Currently Amended) A testing device for environmental monitoring and bioprospecting for microorganisms within a specified environment, said device comprising:

~~a means for providing~~ a plurality of physically separated, test microcosms that are so configured as to allow for fluid flow on a path through said microcosms, wherein the test microcosms are holes in a solid block of material, wherein each microcosm is configured to allow fluid flow from an inlet end to an outlet end while retaining microorganisms within the microcosms defined by the solid block,

a ~~means~~ housing for containing and protecting said test microcosms as they are placed in ~~said~~ an environment, said ~~means~~ housing further providing for ~~the~~ flow of fluid from said ~~surrounding~~ environment to enter and flow through said microcosms, and

~~a means~~ valves for covering said fluid flow paths through said microcosms so as to regulate the flow through said microcosms.

18. (Previously presented) A testing device as recited in claim 17, wherein said plurality of microcosms being configured so as to allow for automated analysis of said microcosms using commercially available robotics.

19. (Currently Amended) A testing device as recited in claim 17, further comprising:

a ~~means~~ pump for causing fluid flow from said ~~surrounding~~ environment and through said microcosms,

a ~~means~~ collecting device for collecting and retaining said fluid flowing through said microcosms, and

a ~~means~~ check valve downstream from said microcosms for preventing backflow of said fluid into said microcosms.

20. (Currently Amended) A testing device as recited in claim 18, further comprising:

a ~~means~~ pump for causing fluid flow from said ~~surrounding~~ environment and through said microcosms,

a ~~means~~ collecting device for collecting and retaining said fluid flowing through said microcosms, and

a ~~means~~ check valve downstream from said microcosms for preventing backflow of said fluid into said microcosms.

21. (Currently Amended) A testing device as recited in claim 17 further comprising ~~a means in~~ at least one of said microcosms configured for fostering the collection of said microorganisms that enter said microcosm.

22. (Currently Amended) A testing device as recited in claim 18 further comprising ~~a means in~~ at least one of said microcosms configured for fostering the collection of said microorganisms that enter said microcosm.

23. (Currently Amended) A testing device as recited in claim 19 further comprising ~~a means in~~ at least one of said microcosms configured for fostering the collection of said microorganisms that enter said microcosm.

24. (Currently Amended) A testing device as recited in claim 20 further comprising ~~a means in~~ at least one of said microcosms configured for fostering the collection of said microorganisms that enter said microcosm.

25. (Currently Amended) A testing device as recited in claim 17 wherein at least one of said microcosms ~~having a means for containing~~ comprises a specified test substance that can diffuse into the fluid flowing through said microcosm.

26. (Currently Amended) A testing device as recited in claim 18 wherein at least one of said

microcosms having ~~a means for containing~~ comprises a specified test substance that can diffuse into the fluid flowing through said microcosm.

27. (Currently Amended) A testing device as recited in claim 19 wherein at least one of said microcosms ~~having a means for containing~~ comprises a specified test substance that can diffuse into the fluid flowing through said microcosm.

28. (Currently Amended) A testing device as recited in claim 20 wherein at least one of said microcosms ~~having a means for containing~~ comprises a specified test substance that can diffuse into the fluid flowing through said microcosm.

29.-32 (Canceled)

33. (Previously presented) A testing device as recited in claim 17 wherein said test microcosm is lyophilized and vacuum sealed prior to use.

34.-36. (Canceled)

37. (Currently Amended) A testing device as recited in claim 17, wherein a test microcosm configured so as to aid in addressing research interests chosen from the group consisting of:

~~the~~ identification and linking of ~~the~~ microbial function occurring in said environment to phylogeny, wherein at least one of said microcosms having placed therein an isotope labeled test compound that can be used in conjunction with stable isotope probing (SIP),

~~the~~ identification and linking of the microbial function occurring in said environment to phylogeny, wherein at least one of said microcosms having placed therein an isotope labeled test compound that can be used in conjunction with mass spectrometry,

~~the~~ survival in said environment of a specified microorganism, herein at least one of said microcosms having placed therein said specified microorganism,

~~the~~ fate in said environment of a specified, genetically engineered microorganism, wherein at least one of said microcosms is configured to contain said genetically engineered microorganism,

~~the~~ fate in said environment of a specified pathogen, wherein at least one of said microcosms is configured to contain said pathogen,

for a specified process in said environment, ~~the~~ effectiveness of specified, varying test substances for their ability to accelerate said process, wherein said test substances are added to said microcosms,

~~the~~ identification of microorganisms indigenous to said environment that are responsible for a desired bioremediation process in said environment,

~~the~~ effectiveness of ~~said~~ varying bioremediation strategies for said environment, wherein said microcosms are configured to be representative of said varying bioremediation strategies,

~~the~~ effectiveness of ~~said~~ varying bioaugmentation strategies for said environment, wherein said microcosms are configured to be representative of said varying bioaugmentation strategies,

~~the~~ effectiveness of ~~said~~ varying chemical treatment strategies for said environment, wherein said microcosms are configured to be representative of said varying chemical treatment strategies,

~~the~~ intrinsic transformation rates in said environment when said environment is contaminated with a specified contaminant,

~~the~~ enhanced transformation rates in said environment when said environment is contaminated with a specified contaminant, wherein specified nutrients are added to said microcosms,

~~the~~ analysis of ~~the~~ a microbial community indigenous to said environment,

~~the~~ proteomic analysis of ~~the~~ a microbial community indigenous to said environment,

~~the~~ discovery within said environment of novel microorganisms of potential commercial value,

~~the~~ discovery within said environment of novel biochemical processes of potential commercial value,

~~the~~ discovery within said environment of a novel natural product ~~products~~ of potential commercial value,

~~the~~ normalization of ~~the~~ test results achieved with said device for differences between when and where said tests are conducted, wherein at least one of said microcosms is configured to serve as an internal standard to which said results can be normalized,

~~the means~~ identification of a chemical for enhancing ~~the~~ a signal-to-noise ratio in ~~the~~ a mass spectrometric analysis of a specified microorganism, wherein at least one of said microcosm configured to foster ~~the~~ growth of said microorganism while limiting ~~the~~ growth and survival of other, non-specified microorganisms,

~~the~~ determination of ~~the~~ a fate of a specified compound in said environment for a ~~the purpose of~~ chemical risk assessment, wherein at least one of said microcosms having placed therein said compound,

~~the~~ determination of ~~the~~ an effect of a specified compound on ~~the~~ a microbial community of said environment for ~~the purpose of~~ chemical risk assessment, wherein at least one of said microcosms having placed therein said compound,

~~the~~ determination of ~~the~~ a fate of a specified microorganism for ~~the purpose of~~ biological risk assessment, wherein at least one of said microcosms having placed therein said microorganism,

~~the~~ determination of ~~the~~ an effect of a specified microorganism on ~~the~~ a microbial community of said environment for ~~the purpose of~~ biological risk assessment, wherein at least one of said microcosms having placed therein said specified microorganism,

~~the~~ determination, for environmental monitoring purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent, said placement being such that said agent is retrievable from said microcosm,

~~the~~ determination, for risk assessment purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent, said placement being such that said agent is retrievable from said microcosm,

~~the~~ determination, for environmental treatment purposes of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent, said placement being such that said agent is retrievable from said microcosm,

~~the~~ determination, for environmental monitoring purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent and said device being configured such that said fluid from the ~~surrounding~~ environment that comes into contact with said agent in said microcosm is retrievable,

~~the~~ determination, for risk assessment purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent and said device being configured such that said fluid from the ~~surrounding~~ environment that comes into contact with said agent in said microcosm is retrievable,

~~the~~ determination, for environment treatment purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent and said device being configured such that said fluid from the ~~surrounding~~ environment that comes into contact with said agent in said microcosm is retrievable,

~~the~~ determination, for environmental monitoring purposes, of ~~the~~ an effect of a specified biochemical process in said environment, wherein said microcosm valve ~~covering means~~ being configured so that the duration of said process in said microcosm is controllable,

~~the~~ determination, for risk assessment purposes, of ~~the~~ an effect of a specified biochemical process in said environment, wherein said microcosm valve ~~covering means~~ being configured so that the duration of said process in said microcosm is controllable,

~~the~~ determination, for environmental treatment purposes, of ~~the~~ an effect of a specified biochemical process in said environment, wherein said microcosm valve ~~covering means~~ being configured so that ~~the~~ a duration of said process in said microcosm is controllable,

~~the~~ elucidation of ~~the~~ in situ metabolic activity of a specified microorganism, wherein at least one of said microcosms having placed therein an isotope labeled test compound which is to be analyzed for ~~the~~ a ratio of light (non-labeled) and heavy (labeled) biomarkers of said microorganism, ~~or~~ and

~~the~~ detection of a specified microorganism in said environment, wherein at least one of said microcosms having placed therein a test compound suitable for increasing ~~the~~ a signal-to-noise ratio of a characteristic biomarker of ~~said~~ a microorganism during mass spectrometric analysis following in situ biomarker amplification.

38. (Currently Amended) A testing device as recited in claim 18, wherein a test microcosm configured so as to aid in addressing research interests chosen from the group consisting of:

~~the~~ identification and linking of ~~the~~ microbial function occurring in said environment to phylogeny, wherein at least one of said microcosms having placed therein an isotope labeled test compound that can be used in conjunction with stable isotope probing (SIP),

~~the~~ identification and linking of the microbial function occurring in said environment to phylogeny, wherein at least one of said microcosms having placed therein an isotope labeled test compound that can be used in conjunction with mass spectrometry,

~~the~~ survival in said environment of a specified microorganism, herein at least one of said microcosms having placed therein said specified microorganism,

~~the~~ fate in said environment of a specified, genetically engineered microorganism, wherein at least one of said microcosms is configured to contain said genetically engineered microorganism,

~~the~~ fate in said environment of a specified pathogen, wherein at least one of said microcosms is configured to contain said pathogen,

for a specified process in said environment, ~~the~~ effectiveness of specified, varying test substances for their ability to accelerate said process, wherein said test substances are added to said microcosms,

~~the~~ identification of microorganisms indigenous to said environment that are responsible for a desired bioremediation process in said environment,

~~the~~ effectiveness of ~~said~~ varying bioremediation strategies for said environment, wherein said microcosms are configured to be representative of said varying bioremediation strategies,

~~the~~ effectiveness of ~~said~~ varying bioaugmentation strategies for said environment, wherein said microcosms are configured to be representative of said varying bioaugmentation strategies,

~~the~~ effectiveness of ~~said~~ varying chemical treatment strategies for said environment, wherein said microcosms are configured to be representative of said varying chemical treatment strategies,

~~the~~ intrinsic transformation rates in said environment when said environment is contaminated with a specified contaminant,

~~the~~ enhanced transformation rates in said environment when said environment is contaminated with a specified contaminant, wherein specified nutrients are added to said microcosms,

~~the~~ analysis of ~~the~~ a microbial community indigenous to said environment,

~~the~~ proteomic analysis of ~~the~~ a microbial community indigenous to said environment,

~~the~~ discovery within said environment of novel microorganisms of potential commercial value,

~~the~~ discovery within said environment of novel biochemical processes of potential commercial value,

~~the~~ discovery within said environment of a novel natural product ~~products~~ of potential commercial value,

~~the~~ normalization of ~~the~~ test results achieved with said device for differences between when and where said tests are conducted, wherein at least one of said microcosms is configured to serve as an internal standard to which said results can be normalized,

~~the means~~ identification of a chemical for enhancing ~~the~~ a signal-to-noise ratio in ~~the~~ a mass spectrometric analysis of a specified microorganism, wherein at least one of said microcosm configured to foster ~~the~~ growth of said microorganism while limiting ~~the~~ growth and survival of other, non-specified microorganisms,

~~the~~ determination of ~~the~~ a fate of a specified compound in said environment for a ~~the purpose of~~ chemical risk assessment, wherein at least one of said microcosms having placed therein said compound,

~~the~~ determination of ~~the~~ an effect of a specified compound on ~~the~~ a microbial community of said environment for ~~the purpose of~~ chemical risk assessment, wherein at least one of said microcosms having placed therein said compound,

~~the~~ determination of ~~the~~ a fate of a specified microorganism for ~~the purpose of~~ biological risk assessment, wherein at least one of said microcosms having placed therein said microorganism,

~~the~~ determination of ~~the~~ an effect of a specified microorganism on ~~the~~ a microbial community of said environment for ~~the purpose of~~ biological risk assessment, wherein at least one of said microcosms having placed therein said specified microorganism,

~~the~~ determination, for environmental monitoring purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent, said placement being such that said agent is retrievable from said microcosm,

~~the~~ determination, for risk assessment purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent, said placement being such that said agent is retrievable from said microcosm,

~~the~~ determination, for environmental treatment purposes of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent, said placement being such that said agent is retrievable from said microcosm,

~~the~~ determination, for environmental monitoring purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said

agent and said device being configured such that said fluid from the ~~surrounding~~ environment that comes into contact with said agent in said microcosm is retrievable,

~~the~~ determination, for risk assessment purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent and said device being configured such that said fluid from the ~~surrounding~~ environment that comes into contact with said agent in said microcosm is retrievable,

~~the~~ determination, for environment treatment purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent and said device being configured such that said fluid from the ~~surrounding~~ environment that comes into contact with said agent in said microcosm is retrievable,

~~the~~ determination, for environmental monitoring purposes, of ~~the~~ an effect of a specified biochemical process in said environment, wherein said microcosm valve ~~covering means~~ being configured so that the duration of said process in said microcosm is controllable,

~~the~~ determination, for risk assessment purposes, of ~~the~~ an effect of a specified biochemical process in said environment, wherein said microcosm valve ~~covering means~~ being configured so that the duration of said process in said microcosm is controllable,

~~the~~ determination, for environmental treatment purposes, of ~~the~~ an effect of a specified biochemical process in said environment, wherein said microcosm valve ~~covering means~~ being configured so that ~~the~~ a duration of said process in said microcosm is controllable,

~~the~~ elucidation of ~~the~~ in situ metabolic activity of a specified microorganism, wherein at least one of said microcosms having placed therein an isotope labeled test compound which is to be analyzed for ~~the~~ a ratio of light (non-labeled) and heavy (labeled) biomarkers of said microorganism, ~~or~~ and

~~the~~ detection of a specified microorganism in said environment, wherein at least one of said microcosms having placed therein a test compound suitable for increasing ~~the~~ a signal-to-noise ratio of a characteristic biomarker of ~~said~~ a microorganism during mass spectrometric analysis following in situ biomarker amplification.

39. (Currently Amended) A testing device as recited in claim 19, wherein a test microcosm configured so as to aid in addressing research interests chosen from the group consisting of:

~~the~~ identification and linking of ~~the~~ microbial function occurring in said environment to phylogeny, wherein at least one of said microcosms having placed therein an isotope labeled test compound that can be used in conjunction with stable isotope probing (SIP),

~~the~~ identification and linking of the microbial function occurring in said environment to phylogeny, wherein at least one of said microcosms having placed therein an isotope labeled test compound that can be used in conjunction with mass spectrometry,

~~the~~ survival in said environment of a specified microorganism, herein at least one of said microcosms having placed therein said specified microorganism,

~~the~~ fate in said environment of a specified, genetically engineered microorganism, wherein at least one of said microcosms is configured to contain said genetically engineered microorganism,

~~the~~ fate in said environment of a specified pathogen, wherein at least one of said microcosms is configured to contain said pathogen,

for a specified process in said environment, ~~the~~ effectiveness of specified, varying test substances for their ability to accelerate said process, wherein said test substances are added to said microcosms,

~~the~~ identification of microorganisms indigenous to said environment that are responsible for a desired bioremediation process in said environment,

~~the~~ effectiveness of ~~said~~ varying bioremediation strategies for said environment, wherein said microcosms are configured to be representative of said varying bioremediation strategies,

~~the~~ effectiveness of ~~said~~ varying bioaugmentation strategies for said environment, wherein said microcosms are configured to be representative of said varying bioaugmentation strategies,

~~the~~ effectiveness of ~~said~~ varying chemical treatment strategies for said environment, wherein said microcosms are configured to be representative of said varying chemical treatment strategies,

~~the~~ intrinsic transformation rates in said environment when said environment is contaminated with a specified contaminant,

~~the~~ enhanced transformation rates in said environment when said environment is contaminated with a specified contaminant, wherein specified nutrients are added to said microcosms,

~~the~~ analysis of ~~the~~ a microbial community indigenous to said environment,

~~the~~ proteomic analysis of ~~the~~ a microbial community indigenous to said environment,

~~the~~ discovery within said environment of novel microorganisms of potential commercial value,

~~the~~ discovery within said environment of novel biochemical processes of potential commercial value,

~~the~~ discovery within said environment of a novel natural product ~~products~~ of potential commercial value,

~~the~~ normalization of ~~the~~ test results achieved with said device for differences between when and where said tests are conducted, wherein at least one of said microcosms is configured to serve as an internal standard to which said results can be normalized,

~~the means~~ identification of a chemical for enhancing ~~the~~ a signal-to-noise ratio in ~~the~~ a mass spectrometric analysis of a specified microorganism, wherein at least one of said microcosm configured to foster ~~the~~ growth of said microorganism while limiting ~~the~~ growth and survival of other, non-specified microorganisms,

~~the~~ determination of ~~the~~ a fate of a specified compound in said environment for a ~~the purpose of~~ chemical risk assessment, wherein at least one of said microcosms having placed therein said compound,

~~the~~ determination of ~~the~~ an effect of a specified compound on ~~the~~ a microbial community of said environment for ~~the purpose of~~ chemical risk assessment, wherein at least one of said microcosms having placed therein said compound,

~~the~~ determination of ~~the~~ a fate of a specified microorganism for ~~the purpose of~~ biological risk assessment, wherein at least one of said microcosms having placed therein said microorganism,

~~the~~ determination of ~~the~~ an effect of a specified microorganism on ~~the~~ a microbial community of said environment for ~~the purpose of~~ biological risk assessment, wherein at least one of said microcosms having placed therein said specified microorganism,

~~the~~ determination, for environmental monitoring purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent, said placement being such that said agent is retrievable from said microcosm,

~~the~~ determination, for risk assessment purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent, said placement being such that said agent is retrievable from said microcosm,

~~the~~ determination, for environmental treatment purposes of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent, said placement being such that said agent is retrievable from said microcosm,

~~the~~ determination, for environmental monitoring purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent and said device being configured such that said fluid from the ~~surrounding~~ environment that comes into contact with said agent in said microcosm is retrievable,

~~the~~ determination, for risk assessment purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent and said device being configured such that said fluid from the ~~surrounding~~ environment that comes into contact with said agent in said microcosm is retrievable,

~~the~~ determination, for environment treatment purposes, of ~~the~~ an effect of a specified agent in said environment, wherein at least one of said microcosms having placed therein said agent and said device being configured such that said fluid from the ~~surrounding~~ environment that comes into contact with said agent in said microcosm is retrievable,

~~the~~ determination, for environmental monitoring purposes, of ~~the~~ an effect of a specified biochemical process in said environment, wherein said microcosm valve ~~covering means~~ being configured so that the duration of said process in said microcosm is controllable,

~~the~~ determination, for risk assessment purposes, of ~~the~~ an effect of a specified biochemical process in said environment, wherein said microcosm valve ~~covering means~~ being configured so that the duration of said process in said microcosm is controllable,

~~the~~ determination, for environmental treatment purposes, of ~~the~~ an effect of a specified biochemical process in said environment, wherein said microcosm valve ~~covering means~~ being configured so that ~~the~~ a duration of said process in said microcosm is controllable,

~~the~~ elucidation of ~~the~~ in situ metabolic activity of a specified microorganism, wherein at least one of said microcosms having placed therein an isotope labeled test compound which is to be analyzed for ~~the~~ a ratio of light (non-labeled) and heavy (labeled) biomarkers of said microorganism, ~~or~~ and

~~the~~ detection of a specified microorganism in said environment, wherein at least one of said microcosms having placed therein a test compound suitable for increasing ~~the~~ a signal-to-noise ratio of a characteristic biomarker of ~~said~~ a microorganism during mass spectrometric analysis following in situ biomarker amplification.

41. (Currently Amended) A testing device as recited in claim 17, further comprising a remote control ~~means~~ for remotely controlling the operation of said ~~means~~ valve for covering said microcosm fluid flow paths.

42. (Currently Amended) A testing device as recited in claim 18, further comprising a remote control ~~means~~ for remotely controlling the operation of said ~~means~~ valve for covering said microcosm fluid flow paths and said ~~means~~ pump for causing fluid flow through said microcosms.

43. (Currently Amended) A testing device as recited in claim 19, further comprising a remote control ~~means~~ for remotely controlling the operation of said ~~means~~ valve for covering said

microcosm fluid flow paths.

44. (Currently Amended) A testing device as recited in claim 20, further comprising a remote control ~~means~~ for remotely controlling the operation of said ~~means~~ valve for covering said microcosm fluid flow paths and said ~~means~~ pump for causing fluid flow through said microcosms.

45. (Currently Amended) A testing device as recited in claim 33, wherein said microcosm ~~microtiter plate~~ lyophilized and vacuum sealed prior to use contains a test compound, a test substance, a test organelle, or a test microorganisms.